

Claims

- [c1] A method to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the nail surface along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;
morphing the digitized nail surface into a preexisting preferred artificial nail surface to create a customized top nail surface, and;
combining the morphing top nail surface with the digitized nail surface to create a final customized and preferred three-dimensional artificial nail object that conforms to an expected result so that the nail object will fit over the digitized nail surface and create a desired artificial nail appearance.
- [c2] The method of Claim 1, wherein starting with a three-dimensional array of data representing a digitized nail surface includes any data that can be used to represent a three-dimensional object.
- [c3] The method of Claim 1, wherein the three-dimensional

array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.

- [c4] The method of Claim 1, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.
- [c5] The method of Claim 1, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.
- [c6] The method of Claim 1, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.
- [c7] The method of Claim 1, wherein morphing the digitized surface includes an iteration of mathematically manipulating the three-dimensional point array of the digitized nail surface to become more similar along the X-axis, Y-axis and Z-axis to the three-dimensional point array of the preexisting and preferred three-dimensional nail surface point array.

- [c8] The method of Claim 7, wherein the method of mathematically becoming more similar would be considered an iteration and the morphing process may take several iterations to arrive at a desired top surface object.
- [c9] The method of Claim 1, wherein the customized and preferred nail object is achieved by combining the three-dimensional point array from the morphing method as the top surface of the desired nail object and the digitized nail surface forms the bottom surface of the desired nail object. The two surfaces are then combined to create the customized and preferred three-dimensional nail object.
- [c10] The method of Claim 1, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.
- [c11] A process to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the nail surface along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;

morphing the digitized nail surface into a preexisting preferred artificial nail surface to create a customized top nail surface, and;
combining the morphing top nail surface with the digitized nail surface to create a final customized and preferred three-dimensional artificial nail object that conforms to an expected result so that the nail object will fit over the digitized nail surface and create a desired artificial nail appearance.

- [c12] The process of Claim 11, wherein starting with a three-dimensional array of data representing a digitized nail surface includes any data that can be used to represent a three-dimensional object.
- [c13] The process of Claim 11, wherein the three-dimensional array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.
- [c14] The process of Claim 11, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.

- [c15] The process of Claim 11, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.
- [c16] The process of Claim 11, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.
- [c17] The process of Claim 11, wherein morphing the digitized surface includes an iteration of mathematically manipulating the three-dimensional point array of the digitized nail surface to become more similar along the X-axis, Y-axis and Z-axis to the three-dimensional point array of the preexisting and preferred three-dimensional nail surface point array.
- [c18] The process of Claim 17, wherein the process of mathematically becoming more similar would be considered an iteration and the morphing process may take several iterations to arrive at a desired top surface object.
- [c19] The process of Claim 11, wherein the customized and preferred nail object is achieved by combining the three-dimensional point array from the morphing process as the top surface of the desired nail object and the digitized nail surface forms the bottom surface of the de-

sired nail object. The two surfaces are then combined to create the customized and preferred three-dimensional nail object.

[c20] The process of Claim 11, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.

[c21] A computer program to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the nail surface along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;
morphing the digitized nail surface into a preexisting preferred artificial nail surface to create a customized top nail surface, and;
combining the morphing top nail surface with the digitized nail surface to create a final customized and preferred three-dimensional artificial nail object that conforms to an expected result so that the nail object will fit over the digitized nail surface and create a desired artificial nail appearance.

[c22] The computer program of Claim 21, wherein starting

with a three-dimensional array of data representing a digitized nail surface includes any data that can be used to represent a three-dimensional object.

- [c23] The computer program of Claim 21, wherein the three-dimensional array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.
- [c24] The computer program of Claim 21, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.
- [c25] The computer program of Claim 21, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.
- [c26] The computer program of Claim 21, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.
- [c27] The computer program of Claim 21, wherein morphing

the digitized surface includes an iteration of mathematically manipulating the three-dimensional point array of the digitized nail surface to become more similar along the X-axis, Y-axis and Z-axis to the three-dimensional point array of the preexisting and preferred three-dimensional nail surface point array.

[c28] The computer program of Claim 27, wherein the process of mathematically becoming more similar would be considered an iteration and the morphing process may take several iterations to arrive at a desired top surface object.

[c29] The computer program of Claim 21, wherein the customized and preferred nail object is achieved by combining the three-dimensional point array from the morphing process as the top surface of the desired nail object and the digitized nail surface forms the bottom surface of the desired nail object. The two surfaces are then combined to create the customized and preferred three-dimensional nail object.

[c30] The computer program of Claim 21, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.